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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,629	10/22/2003	Dong Joon Kim	2336-213	4032

7590 12/15/2005

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EXAMINER

GOUDREAU, GEORGE A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,629

Applicant(s)

KIM ET AL.

Examiner

George A. Goudreau

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1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on (10-22-03' to 8-30-05').
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

George A. Goudreau
GEORGE GOUDREAU
PRIMARY EXAMINER
12-051

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-4, and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Ahn et. al. (KR 2003-010,083).

Ahn et. al. disclose a process for fabricating a laser diode which is comprised of the following steps :

-A n-type GaAs buffer layer, an AlGaAs active layer, a p-type AlGaAs first clad layer, a GaAs etch stop layer are formed onto the surface of a GaAs substrate.;

-A p-type AlGaAs second clad layer is formed onto the surface of the etch stop layer.;

-A cap layer is formed onto the surface of the second clad layer.;

-A Si₃N₄ etch mask layer is formed onto the surface of the cap layer.;

-The cap layer, and the second clad layer are patterned to form a ridge type structure.;

-The first current blocking layer is formed onto the surface of the wafer.;

-The second current blocking layer is formed onto the surface of the first current blocking layer.;

-The Si₃N₄ layer is removed from the surface of the wafer.;

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- The second current blocking layer is wet etched using a solution which is comprised of (NH₄OH-H₂O₂-ethylene glycol).;

- A second p-type cap layer is formed onto the surface of the ridge, and the surface of the second n-type current blocking layer.; and

- The p-type, and n-type metal electrodes are alternately formed on each face of the wafer.

This is discussed specifically in the abstract; and discussed in general in the text of this patent. This is shown in figures 1-5.

It would have been inherent that wet etching process used to treat the second current blocking layer would smooth or reduce the size of protrusions of the surface of the second current blocking layer. The examiner cites the case law listed below of interest to the applicant in this regard.

In re Swinehart (169 U.S.P.Q. 226 (CCPA)) and In re Best (195 U.S.P.Q. 430 (CCPA)) state that when an examiner has reasonable basis for believing that functional characteristics asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be inherent characteristics of the prior art, the examiner possesses the authority to require an applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied upon.

Thus, all of applicant's claimed limitations are fully met in this regard.

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3. Claims 1, and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujii (5,478,775).

Fujii discloses a process for fabricating a laser diode, which is comprised of the following steps:

-A n-type GaAs buffer layer (2)/ a n-type AlGaInP first cladding layer (3)/ an active layer (4)/ a p-type AlGaInP second cladding layer (5)/ a p-type GaInP cap layer (6) are formed onto the surface of a n-type GaAs substrate (1).;

-A ridge is formed by etching the cap layer, and the second cladding layer.;

-An n-type AlGaInP current blocking layer (7) is grown around the ridge using a process, which alternately etches, and deposits the current blocking. The etching step employs a gas, which is comprised of HCl. The size of protrusions on the current blocking layer are reduced during this step, which results in the production of a smoother surface on the current blocking layer.;

-A p-type GaAs contact layer (8) is formed on top of the ridge, and the current blocking layer.; and

-A p-type electrode, and n-type electrode are alternately formed on each face of the wafer.

This is discussed specifically in columns 1, 5-6; and discussed in general in columns 1-8. This is shown in figures 1-3.

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4. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-In claim 1, applicant's referral to an amorphous and/or polycrystalline layer is confusing, and should be reworded.;

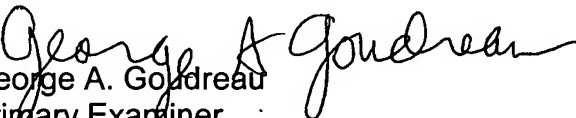
-In line 3 of claim 3, the term "are" should read "area".; and

-In claim 6, the term "EG-group" etchant is vague, and indefinite.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication should be directed to examiner

George A. Goudreau at telephone number (571)-272-1434.


George A. Goudreau
Primary Examiner
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